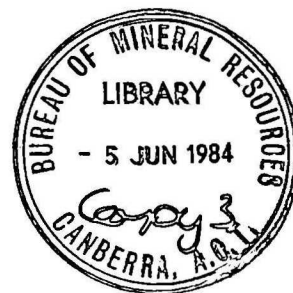


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RECORD

THE AUSTCO
DATA BASE SYSTEM:
USER MANUAL

by

ALAN L. HINDE

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SUMMARY

This manual describes the AUSTCO data base system, which consists of a data file and associated software. The data file may be accessed directly with the text editor, or the software, written in FORTRAN, may be used for various tasks associated with the data base. These include a program to select the wells lying within a digitised map boundary; a program to prepare files of data for input to the program LAMDA, which is used to assess hypothetical undiscovered petroleum resources, and a plotting program to produce graphs of data in AUSTCO.

INTRODUCTION

The AUSTCO data base system (Forman and others, 1984) consists of a data file containing information about petroleum exploration and development wells drilled in Australia, and a number of programs for carrying out tasks associated with the data base. Information stored in the file, which is called AUSTCO:915:9, includes well name and number, well coordinates (latitude and longitude), State, whether onshore or offshore, basin, sub-basin or infrabasin, company, classification (type of well), total depth, date reached total depth, whether oil, gas, or oil and gas were discovered, and identified resources of oil, condensate, LPG, and sales gas. The text editor is used for adding new data, correcting data, and searching for specific wells. A sort program, already available on the HP computer, is used to sort the AUSTCO file.

A number of FORTRAN programs have been written to carry out more involved tasks. There is a program to prepare input data for LAMDA, which assesses hypothetical petroleum resources (Hinde, 1984). Another program will select wells within an irregular, digitised map boundary or within a rectangular area of known coordinates, while another program provides graphical plots of yearly totals of oil and gas reserves discovered, number of new-field wildcats drilled, and depths drilled for the area selected.

The next chapter describes how AUSTCO is organised (ie its format). Subsequent chapters describe how to use the data base system to achieve the tasks mentioned above, and describe the use of the individual FORTRAN programs.

FORMAT OF THE 'AUSTCO' FILE

The data file containing information on Australia's petroleum wells is called AUSTCO and is stored on cartridge 9 under security code 915 (example only, actual security code is confidential). The file consists of records (lines of data) each containing 120 characters. A description of the information contained in each record is given in Table 1 following. Column numbers and length refer to the character positions within the record, and the number of characters occupied by the relevant item, respectively.

TABLE 1. FORMAT OF THE AUSTCO FILE

<u>Columns</u>	<u>Length</u>	<u>Description</u>
1-20	20	well name and number (see Note 1)
21	1	- blank -
22-23	2	latitude : degrees
24	1	- blank -
25-26	2	latitude : minutes
27	1	- blank -
28-29	2	latitude : seconds
30	1	- blank -
31-33	3	longitude : degrees
34	1	- blank -
35-36	2	longitude : minutes
37	1	- blank -
38-39	2	longitude : seconds
40	1	- blank -
41-43	3	state
44	1	- blank -
45	1	onshore (N) or offshore (F)
46	1	- blank -
47-57	11	basin (see Note 2)
58-66	9	sub-basin or infrabasin
67	1	- blank -
68-72	5	company (see Note 3)
73	1	- blank -
74-76	3	classification (see Note 4)
77	1	- blank -
78-81	4	total depth

<u>Columns</u>	<u>Length</u>	<u>Description</u>
82	1	units for total depth (M-metres, F-feet)
83	1	- blank -
84-89	6	date reached total depth
90	1	- blank -
91	1	O - oil, G - gas, X - both
92	1	- blank -
93-99	7	volume of identified oil resources (10^6 m^3)
100-106	7	volume of identified condensate resources (10^6 m^3)
107-113	7	volume of identified LPG resources (10^6 m^3)
114-120	7	volume of identified sales gas resources (10^9 m^3)

Notes:

1. To enable correct sorting, an extra space is inserted between well name and number when the number is a single digit (1-9).
2. Abbreviations for sub-basins are given in Appendix I.
3. Abbreviations for companies are given in Appendix II.
4. Abbreviations for well classifications are given in Appendix III.

USING THE AUSTCO DATA BASE SYSTEM

This chapter describes how to use the data base system, assuming that the user knows how to log-on and log-off, how to handle files, and how to use the text editor on BMR's HP computer system. The data base system is accessible under account ALAN.RESAS, with security code 915, on cartridge 9. It consists of a data file, called AUSTCO, and twelve programs for sorting, checking, correcting, extracting, and plotting data.

Sorting the data file

The sort program is restored with the command: RP, SORT:53:2 and run with the command: RU, SORT. The program will prompt the user to enter: the name of the file to be sorted (AUSTCO:915:9); the name of the new sorted file (eg AUSTC1:915:9); output file type, size, and record length (4,24,120); scratch cartridge (60); type of sort (2); maximum number of records (say 4000); trace (0); key type (C); key start and length (eg 47,20). Key type, key start, and length are entered for each character field on which the file is to be sorted. When no more keys are to be entered, press the RETURN button in response to the prompt for key type.

Key type should always be C (for character) even on numeric fields. Key start is the first column of the field and key length is the number of columns within the field. For example, if the file is to be sorted, firstly by basin, then by well name, the first key start and length would be 47,20 and the second would be 1,20. Table 1 has been set out to facilitate the specifications of sort keys.

Conventions for naming sorted files

A new file is created when AUSTCO is sorted. The following conventions are suggested for naming the new files.

<u>Name of file</u>	<u>Sorted on (in order of priority)</u>	<u>Key start and length</u>
AUSTCO	well name and number	1,20
AUSTC1	basin and sub-basin or infrabasin	47,20
	well name and number	1,20
AUSTC2	basin and sub-basin or infrabasin	47,20
	TD date: year	88,2
	TD date: month	86,2
	TD date: day	84,2
AUSTC3	TD date: year	88,2
	TD date: month	86,2
	TD date: day	84,2

Adding new data

Use the text editor to compile the new data into a new file with the AUSTCO format already described. Add this file to AUSTCO after checking and correcting. Then re-sort AUSTCO.

Checking added data

Program ASCHK has been written to check AUSTCO for possible errors such as characters appearing in columns that should be blank, or oil field sizes appearing when only gas is indicated, and vice versa. Program ASCHK is restored with the command: RP,ASCHK and run with the command: RU,ASCHK.

Program ASCHK may be used whenever additions or corrections are made to AUSTCO. All the sorted versions of AUSTCO should be deleted and re-created whenever changes are made. Alternatively a sorted version of AUSTCO (eg AUSTC1) may be altered and the other sorted files deleted and re-created.

Correcting data

Use the text editor for most corrections.

Program AS120 may be used to bring each record to a length of 120 columns, bring well names to a common format, and convert well depths from feet to metres. The format for well names is given in Note 1 of Table 1.

To run AS120, use the commands: RP,AS120 and RU,AS120 and type in the name of the input file (of AUSTCO format) and the name of the output file (a new file that will take the place of the input file). After running the program, the input file may be deleted and the output file renamed.

Extracting data for input to program LAMDA

Program LAMDA produces assessments of hypothetical undiscovered oil and gas reserves in a given basin, sub-basin, or area. The program has been documented elsewhere (Hinde, 1984). Input to LAMDA is a data file, called DATL, containing: estimates of identified oil or gas resources within new-field discoveries, listed in order of discovery; corresponding new-field wildcat well names and numbers and sequence numbers; and the total number of new-field wildcat wells drilled in the area.

Data file DATL is prepared automatically from data file AUSTC2 by program ASLAM. To restore and run ASLAM, use the commands: RP,ASLAM and RU,ASLAM. The program will prompt the user to enter: the name of the file (AUSTC2 by convention), the basin name, the sub-basin, and whether the resources are oil or gas.

At this stage LAMDA may be run to produce a summary of the data, a straight line fit to the log-field size versus new-field wildcat well number plot, and graphs of cumulative resources and cumulative number of new-field discoveries. To produce an assessment DATL must first be edited to include the future number of new-field wildcat wells to be drilled, the number of iterations, and a triangular distribution for the success rate. Program LAMDA is then run for a second time.

Extracting wells from an irregular digitised area

Well data may be extracted from an irregular area if the area is digitised. Three programs are required for this: program SIMUL transfers numbers from the coordinate digitiser (located in the Drawing Office on the second floor of the BMR building) to a computer file; program DIGEO converts this file into a file of latitude-longitude pairs; and program ASBOU uses the latter file to extract the required well data from AUSTCO (or one of the sorted files) and store it in a new file. The steps in this procedure are as follows.

Step 1. Secure a map of the area to the digitising table. Turn on the digitiser and set it in point mode. Log-on to the adjacent terminal and run program SIMUL. (Instructions for using the digitiser and running SIMUL can be found near the terminal, or someone in the Drawing Office may be asked for assistance. Program SIMUL simulates program GRADI, which was used when digitising with the old digitiser. Instructions for program GRADI can be found in 'Documentation for program DIGEO', which is kept in the desk next to the digitiser.) Enter the output file name and any other information requested by the program.

Now enter, at the terminal, the title or description of the work, the latitudes and longitudes of four control points (such as the corners of the map boundary), the map scale, and the map projection. Each line should begin with the character -C to indicate that they are comments. Then digitise the four control points.

The area to be studied may now be digitised. Digitise in a clockwise direction. Take care that no two points are very close (say $<.1$ mm) and that the boundary does not cross itself anywhere. The last digitised point need not be the same as the first, because program ASBOU automatically joins the first and last points.

When the digitising is completed, press the '*' button on the cursor. Finally, switch off the digitiser and log-off.

Step 2. Log-on (at any terminal), then restore, and run program DIGEO with the commands: RP,DIGEO and RU,DIGEO. This produces a new file of latitude-longitude pairs. The program will call for the following information: the name of the file produced by program SIMUL in step 1; the output option (use the value 2 - disk output only); the name of the output file, its security code, and cartridge number (a new file to contain the latitude-longitude pairs); the map projection; the two standard parallels (for Lambert conformal conic projection); the scale of the map, and the latitude and longitude of each control point.

Step 3. Restore and run program ASBOU with the commands: RP,ASBOU and RU,ASBOU. The program will call for: the input file name (ie the file produced by program DIGEO in Step 2) and the output file name (a new file). This final file will contain the data for the wells extracted, in the format of the AUSTCO file.

Extracting wells from a rectangular area

Program ASWIN may be used to extract well data from within a rectangular area whose sides are aligned along the parallels and meridians.

To run ASWIN use the commands: RP,ASWIN and RU,ASWIN and type in the name of the input file (of AUSTCO format), the name of the output file, the minimum and maximum longitude (decimal degrees), and the minimum and maximum latitude (positive decimal degrees, southern latitude is assumed).

Automatic naming of basins and sub-basins

Program ASNAM automatically enters the name of the basin and sub-basin (or infrabasin) for wells within a digitised boundary. To run ASNAM use the commands, RP,ASNAM and RU,ASNAM, and type in the name of the input file (of AUSTCO format), the name of the output file (the new file that will replace the input file), the new basin name, the new sub-basin or infrabasin name, and the name of the file containing coordinates of the digitised boundary (a file produced by program DIGEO). After running the program, the input file may be deleted and the output file renamed.

Plotting annual totals of data

ASPLT may be used to plot the annual totals of oil or gas resources identified in new-field discoveries, annual totals of new-field wildcat wells drilled, or annual kilometres drilled. The data are plotted for a specified basin or sub-basin, or if these are not specified, they are plotted for the area represented by the entire file. Direct foreign investment, portfolio foreign investment, or total foreign investment, adjusted by the consumer price index to give approximately constant prices, may also be plotted. Any two of these data may be plotted on the same graph.

The program is restored and run with the commands, RP,ASPLT and RU,ASPLT. It will ask the user to enter the name of the data file, the required basin and sub-basin, whether onshore or offshore wells, or both, are to be used, and the type of data to be plotted (one at a time). A coloured pen plot is produced on the zeta (drum) plotter.

Tabulating annual totals of data

Program ASTAB is used to tabulate annual totals of number of new-field wildcat wells, number of new-field discoveries containing oil, number of new-field discoveries containing gas, success ratios for oil and gas, the success ratio for new-field discoveries, km drilled, and total oil and gas resources identified within new-field discoveries. To restore and run the program use the commands: RP,ASTAB and RU,ASTAB,u, where u specifies where the output is to be sent. If u = 1 or u is not specified the output is sent to the screen, if u = 16 the output is sent to the printer. The program will ask for the name of the input data file (of AUSTCO format).

DESCRIPTION OF AUSTCO DATA BASE PROGRAMS

This chapter summarises the use of each program in the AUSTCO data base system.

Program SORT

Purpose: to sort a data file on specified data fields (keys).

Usage: RP,SORT:53:2

RU,SORT

Input files required: the data file to be sorted.

Input required from the terminal (in response to prompts):

- . the name of the file to be sorted;
- . the name of the (new) file to contain the output;
- . the type of the output file, its size and record length
(4,24,120 for an AUSTCO file);
- . the scratch cartridge number (60);
- . the type of sort (2 - new file);
- . the maximum number of records (say 4000)
- . whether a trace of the program is required (0 - no, 1 - yes);
- . the type of data field on which the file is to be sorted
(use C for character type);
- . the starting position of the data field on which the file is
to be sorted, and the number of characters in the field
(eg 47,20).

The last three lines are repeated for each key. The keys are entered in decreasing priority. A blank line is entered to signify the end of data and start of program.

Output files produced: the sorted file.

Comments: if this program is terminated before completion, four scratch files will be left on the system. They should be deleted. They are: .SRT.1, .SRT.2, .SRT.A, .SRT.B. and are stored on cartridge 60 under security code 0.

Program ASCHK

Purpose: To check the AUSTCO file for obvious errors.

Usage: FT,ASCHK,, -B } or RP,ASCHK
LO }
RU,ASCHK

Input files required: AUSTCO or a file with the same format.

Input required from the terminal (in response to prompts):

- . name of the data file.

Output files produced: none

Output at the terminal: Any record, in which an error is detected, is displayed on the terminal screen. Up-arrow symbols ('^') are displayed beneath the record to show where the suspected error or errors are.

Program AS120

Purpose: To ensure that all records in the AUSTCO file have 120 characters. To ensure that all well names and numbers conform to the convention in Note 1 of Table 1. To convert well depths from feet to metres.

Usage: FT,AS120,, -B } or RP,AS120
 LO
 RU,AS120

Input files required: AUSTCO or a file with the same format.

Input required from the terminal (in response to prompts):

- . the name of the input data file (of AUSTCO format);
- . the name of the new file (to replace the input file).

Output files produced: A new file in the same format as AUSTCO, to replace the old file.

Comments: After running AS120 the old file can be replaced with the new file by deleting the old file with the command: PU,old file then renaming the new file to the old file with the command: RN,newfile,old file

Program ASLAM

Purpose: To select from the AUSTCO data file all oil or gas fields for a specified basin/sub-basin and to make from these the file, DATL, ready for use by program LAMDA.

Usage: FT,ASLAM,, -B } or RP,ASLAM
 LO
 RU,ASLAM

Input file required: AUSTC2 or AUSTC3

Input required from the terminal (in response to prompts):

- . the name of the input file (if not AUSTC2);
- . basin name;
- . sub-basin or infrabasin;
- . whether oil or gas.

Output files produced: DATL (the input file to program LAMDA) containing sufficient data to run LAMDA without a future assessment. See the record on program LAMDA (Hinde, 1984) for further details about the format of this file. DATL must already be present on the computer before running ASLAM.

Comments: To prepare DATL for all oil or gas fields in Australia, leave basin and sub-basin blank and use AUSTC3 for the input file.

Program SIMUL

Purpose: To create a file of digitised x,y coordinates while operating the digitiser (located in the Drawing Office on the second floor).

Usage: Running program SIMUL and using the digitiser is described in documentation kept near the digitiser.

Input files required: none

Input required from the terminal before digitising:

- . data requested by the program with prompts;
- . any comments to be inserted in the file (denoted by the characters, -C, at the beginning of the line).

Output files produced: A file containing the digitised x,y coordinate pairs. There should be 4 pairs per line.

Comments: This program was written by, and is maintained by, the Drawing Office staff. It is subject to alteration by them.

Program DIGEO

Purpose: To convert x,y coordinate pairs, (in mm) obtained by digitising a map, into latitude-longitude pairs.

Usage: RU,LOADR } or RP,DIGEO
 REL,DIGEOR }
 END
 RU,DIGEO

For greater details on running DIGEO, see the documentation kept in the desk next to the digitiser.

Input files required: A file containing digitised x,y coordinate pairs, 4 pairs per line. This file is produced during the digitising process using program SIMUL.

Input required from the terminal (in response to prompts):

- . input data file name;
- . where the output is to be sent (a new file and/or the printer);
- . the output file name, its security code and cartridge;
- . the projection of the digitised map;
- . the standard parallels (if the map project is the Lambert conformal conic);
- . the scale of the digitised map;
- . the latitudes and longitudes of the four control points (these are to be given as signed decimal numbers, eg latitude 26°30' S is to be typed -25.5).

Output file produced: A file containing the latitudes and longitudes of the digitised map.

Program ASBOU

Purpose: To extract from the AUSTCO data file those new-field wildcats lying within a map boundary, the boundary having been digitised with the digitiser located on the second floor, and place them in a new file.

Usage: FT,ASBOUN,, -B } or RP,ASBOU
 LO }
 RU,ASBOU

Input files required:

- . a file containing the latitudes and longitudes of the digitised boundary in the format produced by program DIGEO;
- . AUSTCO or a file with the same format.

Input required from the terminal (in response to prompts):

- . the name of the input data file;
- . the name of the (new) output file;
- . the name of the file containing the digitised boundary.

Output files produced: A file containing the new-field wildcats selected from AUSTCO that lie within the digitised boundary. The format of this file is exactly the same as the AUSTCO file.

Comments: Program BPLOTT can be used to check the results of ASBOU by plotting the boundary and the positions of the selected wells.

Program ASWIN

Purpose: To extract from the AUSTCO data file those new-field wildcats lying within a rectangular boundary, ie a four-sided window aligned along parallels of latitude and meridians of longitude.

Usage: FT,ASWIN,, -B } or RP,ASWIN
 LO }
 RU,ASWIN

Input files required: AUSTCO or a file with the same format.

Input required from the terminal (in response to prompts):

- . the name of the input data file;
- . the name of the (new) output file;
- . the minimum longitude (in decimal degrees);

- . the maximum longitude (in decimal degrees);
- . the minimum latitude (in positive decimal degrees south);
- . the maximum latitude (in positive decimal degrees south).

Output files produced: A file containing the data for the new-field wildcats taken from AUSTCO that lie within the rectangle. The format of this file is exactly the same as the AUSTCO file.

Program BPLOT

Purpose: To produce a plot, on the HP printer/plotter, of a digitised boundary and (optionally) of well locations. A standard map projection is not produced, rather, the latitudes and longitudes are plotted without transformation. The program is intended to be used as a visual check of the digitised boundary and well locations.

Usage: FT,BBPLOT,, -B } or RP,BPLOT
 LO
 RU,BPLOT

Input files required:

- . a file containing the latitudes and longitudes of the digitised boundary in the format produced by DIGEO;
- . a file, in AUSTCO format, containing the wells to be plotted (optional).

Input required from the terminal (in response to prompts):

- . a title (40 characters);
- . X0, Y0, X1, Y2 (format 4F10.0) where
 X0 = longitude of the lower left corner of plot,
 Y0 = latitude of the lower left corner of plot,
 X1 = longitude of the lower right corner of plot,
 X2 = latitude of the upper left corner of plot,
 these are in signed decimal degrees;
- . the name of the file containing the digitised boundary;
- . the name of the file containing the wells to be plotted (if this is not required, type RETURN only).

Output produced: One plot, on the HP printer/plotter, of the digitised boundary. The title is plotted at the top. If well locations are plotted they are represented with '+' symbols.

Program ASNAM

Purpose: To name, in the AUSTCO file, the basin and sub-basin (or infrabasin) of all wells that lie within a digitised area.

Usage: FT,ASNAME,,-B } or RP,ASNAM
 LO
 RU,ASNAM

Input files required:

- . AUSTCO or a file with the same format;
- . a file containing the latitudes and longitudes of the digitised boundary in the format produced by DIGEO.

Input required from the terminal (in response to prompts):

- . the name of the input data file (of AUSTCO format);
- . the name of the new file (to replace the input file);
- . the new basin name;
- . the new sub-basin name;
- . the name of the file containing the digitised boundary.

Output files produced: A new file, in the same format as AUSTCO, to replace the old file.

Comments: After running ASNAM the old file can be replaced with the new file by deleting the old file with the command:

PU,old file

then renaming the new file to the old file with the command:

RN,new file,old file.

Program ASPLT

Purpose: To plot, for a specified basin, yearly totals of AUSTCO data and foreign investment against year (from 1960 to 1983). The data that may be plotted are: oil resources, gas resources, number of new-field wildcats, kilometres of new-field wildcats drilled, direct foreign investment portfolio foreign investment, and total foreign investment. The last three are adjusted by the consumer price index to give approximately constant 75/76 prices. Any two of these series may be plotted within one graph frame. Further series will be plotted in new graph frames, two per frame. Data is plotted for new-field wildcats only.

Usage: FT,ASPLT,,-B } or RP,ASPLT
 LO
 RU,ASPLT

Input files required: AUSTCO or a file with the same format (how it is sorted is irrelevant).

Input required from the terminal (in response to prompts):

- . the name of the input data file;
- . the required basin;
- . the required sub-basin or infrabasin;
- . whether only onshore (N), only offshore (F), or all new-field wildcats are to be considered;
- . the data series to be plotted.

The last line may be repeated indefinitely. A zero stops the program.

Output produced: A plot on the zeta (drum) plotter.

Comments: The range of years over which the data is plotted (1960 to 1983) may be altered by altering the data statement labelled 1000 in the program. The range is limited to a maximum span of 25 years, unless the DIMENSION statement is altered.

Program ASTAB

Purpose: To tabulate for a specified basin, yearly totals of AUSTCO data. The yearly data tabulated are: number of new-field wildcats, number of oil fields, number of gas fields, success ratio for oil fields, gas fields, and overall success ratio, kn of new-field wildcats drilled, total oil and gas resources. Data is tabulated for new-field wildcats only.

Usage: FT,ASTAB,, -B } or RP,ASTAB
 LO }
 RU,ASTAB,U where U = the output device

Input files required: AUSTCO or a file with the same format (how it is sorted is irrelevant).

Input required from the terminal (in response to prompts):

- . the name of the input data file.

Output produced: a table of the yearly data.

Comments: See comments for ASPLT.

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- FORMAN, D.J., HINDE, A.L., and TOTTERDELL, J., 1984 - Data file AUSTCO: wells drilled for petroleum in Australia (to January 1984). Bureau of Mineral Resources, Australia, Report 256. BMR Microform MF202.

APPENDIX I - ABBREVIATIONS FOR SUB-BASINS

ASHMORE	Ashmore Block (Bonaparte Basin)
BARBWIRE	Barbwire Terrace (Canning Basin)
BARROW	Barrow and Dampier Sub-basins (Carnarvon Basin)
BEAGLE	Beagle Sub-basin (Carnarvon Basin)
BEDOUT	Bedout Sub-Basin (Canning Basin)
BROOME	Broome Arch (Canning Basin)
CENTRAL	North of 26 degrees south (Bowen Basin)
CENTRAL	Central Deep (Gippsland Basin)
DARWIN	Darwin Shelf (Bonaparte Basin)
EXMOUTH	Exmouth Plateau (Carnarvon Basin)
FITZROY	Fitzroy Trough (Canning Basin)
JURGURRA	Jurgurra Terrace (Canning Basin)
KIDSON	Kidson Sub-basin (Canning Basin)
KIMBERLEY	Kimberley Shelf (Bonaparte Basin)
LENNARD S	Lennard Shelf (Canning Basin)
LONDON	Londonderry High (Bonaparte Basin)
MALITA	Malita Graben (Bonaparte Basin)
MARGARET	Margaret Terrace (Canning Basin)
PEEDA	Peedamullah Shelf (Carnarvon Basin)
PETREL	Petrel Sub-basin (Bonaparte Basin)
PORT CA	Port Campbell Embayment (Otway Basin)
RANKIN PL	Rankin Platform (Carnarvon Basin)
ROWLEY	Rowley Sub-basin (Canning Basin)
SAHUL	Sahul Platform (Bonaparte Basin)
SOUTHERN	South of 26 degrees south (Bowen Basin and overlying Surat Basin)
VULCAN	Vulcan Sub-basin (Bonaparte Basin)
WALLAL	Wallal Embayment (Canning Basin)
WILLARA	Willara Sub-basin (Canning Basin)

APPENDIX II - ABBREVIATIONS FOR COMPANIES

ABOC	American Oil Company
ABOIL	Abrolhos Oil N.L., Abrolhos Oil & Investments Ltd
ACS	Australia-Cities Service Ltd
AEQ	Ampol Exploration (Queensland) Pty Ltd
AIS	Australian Iron and Steel Ltd
AMALG	Amalgamated Petroleum N.L., Amalgamated Petroleum Exploration Pty Ltd
AMAX	Amax Petroleum (Australia) Inc., Amax Petroleum
AMOCO	Amoco Australia Exploration Company, Amoco Australia Pty Ltd
AMRDA	Amerada Petroleum Corporation of Australia Ltd
AOC	Australian Oil Corporation
AOD	Alliance Oil Development Australia N.L. (formerly Oil Development N.L. and Alliance Petroleum Australia N.L.)
AOE	Australian Oil Exploration Ltd
AOG	Australian Oil and Gas Corporation Ltd
APEX	Apex Oil N.L.
APM	Australian Paper Manufacturers Development Pty Ltd
AQUIT	Australian Aquitaine Petroleum Pty Ltd
ARCO	Arco Australia Ltd
ARGON	Argonaut International Corporation
ARO	Australian Roma Oil Ltd
ASBTN	Ashburton Oil N.L.
ASEAS	American Overseas Petroleum Ltd
ASSOC	AAR Ltd, Associated Australian Resources N.L., Associated Australian Oilfields N.L., Associated Freney Oil Fields N.L., The Papuan Apinaipi Petroleum Company, Interstate Oil Ltd, Associated Continental Petroleum N.L., H.C. Sleigh Exploration Ltd
BALML	Balmoral Resources N.L.
BAO	British Australasian Oil Syndicate
BBC	Beauesert Boring Company
BEA	Beaver Exploration Australia N.L.
BEACH	Beach Petroleum N.L.
BLACR	Blacker, Brady and Turner Syndicate
BLFRD	Belford Dome Ltd

BOC	B.O.C. of Australia Ltd, Bocal Pty Ltd
BOCPL	Barkley Oil Company Pty Ltd
BOP	Boona Oil Prospecting Company Ltd
BOWVL	Bow Valley Industries Ltd
BP	BP Petroleum Development Australia Pty Ltd
BRDGE	Bridge Oil Ltd, Bridge Oil N.L.
BRUNS	Brunswick Oil N.L., Oberon Oil Pty Ltd
BSH	Bishops
CABOT	Cabot Corporation
CAPE	Cape Range Oil N.L.
CCOL	Central Coast Oil Ltd
CENTR.	Centralia Oil Pty Ltd
CITCO	Citco Australian Petroleum, Citco Australia Petroleum Ltd
CLINT	Clintons
CNW	Canada Northwest Australia Oil N.L.
COHO	Coho Exploration Pty Ltd
COMC	Clarence Oil and Minerals Company N.L.
COMSV	Comserv (No 779) Pty Ltd
CONCO	Conoco Australia Ltd (Continental Oil Company of Australia Ltd)
CONDA	Condamine Oil Ltd
CNRDA	Conorada Petroleum Corporation
CPS	Coopers Creek Mining and Exploration N.L.
CRBO	Clarence River Basin Oil Exploration Company
CROL	Clarence River Oil N.L.
CRPC	Clarence River Prospecting Company Ltd
CRUSA	Crusader Oil N.L.
DAMSN	Damson Oil (Australia) Ltd
DEFE	Dome Frome
DELHI	Delhi Petroleum Pty Ltd, Delhi International Oil Corporation, Delhi Australian Petroleum Ltd
DELTA	Delta Oil N.L.
DIAMD	Diamond Shamrock Oil Company (Australia) Pty Ltd
DOME	Dome Oil and Minerals Syndicate N.L.
DUBBO	Dubbo Oil Syndicate
EAGLE	Eagle Corporation Ltd
ENDEV	Endeavour Oil Company Ltd
ENRSC	Energy Resources Inc
ENTPO	Enterprise Oil Exploration Pty Ltd

ESPET	Eastern Petroleum Australia Ltd
ESSO	Esso Exploration and Production Australia Inc
EXOIL	Exoil Oil Company Pty Ltd, Exoil (N.T.) Pty Ltd, Exoil (NSW) Pty Ltd
FBH	Frome Broken Hill Company Pty Ltd
FLIND	Flinders Petroleum N.L.
FMOUT	Farmout Drillers N.L.
FPC	French Petroleum Company (Australia) Pty Ltd, French Petroleum Corporation
GASDR	Gas Drillers Ltd
GASFU	Gas and Fuel Exploration N.L.
GCS	Golden Chance Syndicate
GECAU	General Exploration Company of Australia Pty Ltd
GENOA	Genoa Oil N.L.
GEOIL	Geoil Ltd
GETTY	Getty Oil Development Company Ltd
GEWEK	Gewerkschaft Elwerath
GFOC	Geelong Flow Oil Company
GOLDN	Golden West Hydrocarbons.
GULF	Australian Gulf Oil Company
HALDY	Halliday Enterprises Pty Ltd
HARTG	Hartogen Energy Ltd, Hartogen Exploration Pty Ltd
HBK	Henry B. Kelsey
HGHS	Hughes and Hughes Oil and Gas
HBSDE	Harbourside Oil N.L.
HDBAY	Hudbay Oil (Australia) Ltd
HEMAT	Hematite Petroleum Pty Ltd
HNL	R. Henzell
HNT	Hodinottes
HOME	Home Oil Australia Ltd
HOUST	Houston Oil and Minerals Australia Inc
HUMBR	Humber Barrier Reef Oils Pty Ltd
HUNT	Hunt Oil Company
IEDC	International Energy Development Corporation of Australia Pty Ltd
INTOL	International Oils Exploration N.L.
IPP	Isis Petroleum Prospecting Syndicate
IPS	International Petroleum Services Pty Ltd
ISTOL	Interstate Oil Ltd

JIMBL	Jimibilly Pty Ltd
JOHEN	John Henry Resources Pty Ltd
LAKES	Lakes Oil Ltd
LETON	Leighton Mining
LNNRD	Lennard Oil N.L.
LOA	Landor Oilfields (Australia) Ltd
LOL	Longreach Oil Ltd, Longreach Oil Wells Ltd
LSD	Lucky Strike Drilling Company
LSG	LSG Australia Inc
MAGLN	Magellan Petroleum Corporation, Magellan Petroleum (Australia) Ltd, Magellan Petroleum (NT) Pty Ltd
MALTA	Malta Oil Company
MASKL	W.J. Maskell
MAYMN	Mayfair Minerals Inc
MBOS	Murray Basin Oil Syndicate
MEO	Mid-Eastern Oil N.L., Mid-Eastern Oil Company Ltd
MERID	Meridian Oil N.L.
MESA	Mesa Australia Ltd
MGNET	Magnet Metals N.L.
MINEX	Minex Inc
MOAGE	Moage Ltd
MOBIL	Mobil Oil Australia Ltd
MOL	Murilla Oil Ltd
MONAR	Monarch Petroleum N.L.
MOONI	Moonie Oil Company Ltd
MOP	Mackay Oil Prospecting Syndicate
MOW	Mineral Oils and Water Pty Ltd
MPY	Melrose Petroleum Prospecting Company
MRMBA	Murumba Oil N.L.
MRSYV	Mersey Valley Oil Company
MRTHN	Marathon Petroleum Australia Ltd
MWE	Mid-Wood Exploration Pty Ltd
NAI	North American International Inc
NAO	Nortex Australian Oils Ltd
NBH	North Broken Hill Holdings Ltd
NGOCO	Natural Gas and Oil Corporation Ltd
NSTAR	North Star Oil Corporation
NSWOG	NSW Oil and Gas Company N.L., New South Wales Oil and Gas Company Ltd
NUDEC	Nudec Petroleum Exploration Company

NWOIL	North West Oil and Minerals Company N.L.
OCA	Oil Company of Australia N.L.
OCCID	Australian Occidental Petroleum Inc, Australian Occidental Petroleum Company
OCENA	Oceania Petroleum Pty Ltd
OCENV	Ocean Ventures Pty Ltd
OFFSH	Offshore Oil N.L.
OILG	Oil and Gas Investigation Ltd
OILMN	Oilmin N.L.
OILSR	Oil Search Ltd
OOC	Orion Oil Company
OPL	Oil Prospectors Ltd
OTTER	Otter Exploration N.L.
OUTBK	Outback Oil Company N.L.
PACIF	Pacific Basin Exploration Pty Ltd
PADIS	Point Addis Oil Wells
PAP	The Papuan Apinaipi Petroleum Company Ltd
PENOL	Peninsula Oil Syndicate
PETEN	Petrofina
PEXA	Pexa Oil N.L.
PHLPS	Phillips Australian Oil Company, Phillips Petroleum Company
PHOEN	Phoenix Oil and Gas N.L.
PLNET	Planet Exploration Company Pty Ltd
PNCON	Pancontinental Petroleum Pty Ltd
PNPAC	Pan Pacific Petroleum N.L.
POP	Providence Oil Pty Ltd
PROJT	Project Oil Exploration Ltd
PSUIT	Pursuit Oil N.L.
QAO	Queensland American Oil Company
QCO	Queensland Coastal Oil Concessions (North)
QOC	Queensland Oil Corporation Ltd
QOD	Queensland Oil Development Company Ltd
QRO	Queensland Roma Oil Ltd
RAL	Roma Alicker Ltd
RBO	Roma Blocks Oil Company N.L.
RDL	Roma Dome Ltd
RJC	Robson and Jarvis and Co
ROC	Roma Oil Corporation
SAOG	South Australian Oil and Gas Corporation Pty Ltd
SAOW	South Australian Oil Wells Company

SDO	Salt Domes Oil Syndicate
SEOS	South East Oil Company
SGP	Standard Gas Pty Ltd
SHEC	Signal Hill Oil Exploration Company
SHELL	Shell Development (Australia) Pty Ltd
SHRLN	Shoreline Exploration Company
SLFAR	Silfar Pty Ltd, Silfar Oil and Gas Search Company Pty Ltd
SMART	L.H. Smart Oil Exploration Company Pty Ltd
SNTOS	Santos Ltd
SPP	South Pacific Pty Ltd
SQD	Shell (Queensland) Development Company Ltd
STRAT	Strata Oil N.L.
STREV	John Strevens (Terrigal)
STRLG	Stirling Petroleum N.L.
SUECP	Southern Union Energy Pty Ltd
SUN	Australian Sun Oil Company Ltd
SUNCA	Sun Oil Company of California
SYDOL	Sydney Oil Company Ltd
TEP	Target Exploration Pty Ltd, Target Petroleum N.L.
TEXAM	Texam Oil Corporation
TILEY	Tilley
TIMOR	Timor Oil Ltd
TNNCO	Tenneco Australia Inc
TOTAL	Total Exploration Australia Pty Ltd
TRANS	Transoil N.L.
TYLER	E.E. Tyler
ULTRA	Ultramar Australia Ltd
UNION	Union Oil Development Corporation (sometimes in association with Kern County Land Company and Australian Oil and Gas Corp Ltd)
UPR	United Petroleum Reserves N.L.
UTEX	Union Texas Petroleum Corporation
VALVE	Valve Oil Wells
VMGAS	Vamgas N.L., Vamgas Ltd
WAPET	West Australian Petroleum Pty Ltd
WCW	W.C. and H.J. Walz
WESTN	Western Resources Ltd
WESTR	Westralian Oil Ltd
WEVER	Weaver Oil and Gas Corporation Australia

WMC	Western Mining Corporation Ltd, Wesminco Oil Pty Ltd
WOC	Westland Oil Company Ltd
WOODS	Woodside Oil N.L., Woodside (Lakes Entrance) Oil Company N.L.
WPA	Woods Petroleum of Australia Ltd
WPD	Woodside Petroleum Ltd, Woodside Petroleum Development Pty Ltd
WPL	Winneills Pty Ltd
WPO	Wellington Point Oil Wells Ltd
XL	XL Petroleum Pty Ltd, XL Petroleum (NSW) Pty Ltd
YERBL	Yerrinbool Oil Prospecting Syndicate
ZANEX	Zanex Ltd
ZINC	Zinc Corporation Ltd

APPENDIX III - ABBREVIATIONS FOR WELL CLASSIFICATIONS

NFW	new-field wildcat
EXT	extension
SPT	shallow pool test
DPT	deeper pool test
NPW	new pool wildcat
STR	stratigraphic
DEV	development
SRV	service